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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/432,824	11/02/1999	ROGER PHILLIP QUAYLE	A-68101/JGW	1614

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EXAMINER

PAN, YUWEN

ART UNIT PAPER NUMBER

2682

DATE MAILED: 09/02/2003

12

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/432,824

Applicant(s)

QUAYLE ET AL.

Examiner

Yuwen Pan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 June 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 1-5,13,15,20 and 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6-12,14 and 16-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

***Response to Arguments***

1. Applicant's arguments filed 6/16/03 have been fully considered but they are not persuasive.

The applicant's argument states that the first rejection on claim 11 based on the combination of five prior art is inappropriate. The examiner disagrees. Truly, providing certain amount of bandwidth and assigning more channels or time slots are well known utilization of increasing or maintaining data rate at certainly levels. Also, setting up the boundary of coverage area of a base station is based on the system requirement and adjustable power output. Addition teaching from Widegren and Secord is an example of that one ordinary skill the art would select a reasonable range of data rate and coverage in radius based on its invention. By just claiming certain numbers of data rate or coverage in radius has no novelty.

Further the applicant requires the examiner to provide proofs for the "Official Notice" of "the fact that is notoriously well known in the art to divide frequency banded and time domain interframe and each frame has a number of times slots allocated to control uplink and downlink communication in order to reduce the interference during transmitting and receiving." was taken from the first office action. See following detailed action with new cited reference Alamouti et al.

Furthermore since the applicant didn't response to the rejected claims 14 and 16-19, the rejection is maintained the same.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 6, 12, 14, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Widegren et al. (US006374112B1) in view of Andersson et al (US006400966B1) and Miya et al (US006351458B2) and further in view of Secord et al (US006373831B1) and Wickman (US006047177A).

With respect to claims 6 and 12, Widegren et al disclose a cellular wireless Internet access system (see figure 1, items 14, 20, 24 and 30) including:

A plurality of portable subscriber terminals each has a directly attached antenna for communicating in a predetermined frequency band with a predetermined nearby base station and a plurality of cellular base stations transmitting and receiving with plurality of subscriber terminals (See figure 1, item 30, 28 and column 2, line 39-44). Items 30 represents one of portable subscriber terminals has an antenna directly attached. Since it is a WCDMA system, frequency band (wide bandwidth) is predefined for each communication between terminals and nearby base station for quality of service.

For operating on a small frequency allocation obtainable anywhere within the designated frequency band using a single frequency channel varying bandwidth between 6 and 24 MHz. See column 2 and line 39-44, column 5 and line 56-58). Although Widegren et al only indicate a

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single frequency channel would be vary between 5 and 15 MHz, Widegren et al did indicate “ in the future, promises an even greater bandwidth”. Moreover, 5-15 MHz does fall in the range between 6-24MHz.

Widegren et al do not disclose using different spread spectrum chip rates and base station in a time division duplex mode to enable transmitting and receiving at single frequency channel.

Andersson et al disclose base station may have to support a number of chip rates. See column 2, and line 20-23. It would have been obvious to a one of ordinary skill in the art at the time the invention was made to combine Andersson et al with Widegren et al such that different spread spectrum chip rates was used. One of ordinary skill in the art would have been motivated to do this to support very high user data rate in a W-CDMA system.

Miya et al disclose a CDMA wireless communication, which operates TDD. See column 2 and line 1-10. It would have been obvious to a one of ordinary skill in the art at the time the invention was made to combine Miya with the combination of Widegren et al and Andersson et al. One of ordinary skill in the art would have been motivated to do this to have a same frequency for transmission and reception between base station and mobile stations without interference and increase the capacity and traffic demand.

Combination of Widegren et al., Andersson et al, and Miya do not disclose data rate between 1.5 and 3.0 Mbps and a cell size of 1.5-mile radius, with orthogonal downlink spreading codes for CDMA transmission, and successive interference cancellation or simultaneous uplink spreading codes.

Secord et al disclose 2 Mbps data rate that falls in the range of 1.5 - 3.0 Mbps. See column 1, and lines 23-34. At the time the invention was made, it would have been obvious to a

person of ordinary skill in the art to combine Widegren et al., Andersson et al, and Miya et al with Secord et al. One of ordinary skill in the art would have been motivated to do this since data rates is varying with the providing frequency bandwidth. The large bandwidth has, the higher data rate gets.

Wickman discloses a cell of a radius of between 0.1-5km. See column 5 and line 42-65. At the time the invention was made, it would have been obvious a person of ordinary skill in the art to combine Widegren et al., Andersson et al, and Miya et al with Secord et al with Wickman. One of ordinary skill in the art would have been motivated to do this since it is all based on the design choice.

The examiner takes "Official Notice" of the fact that is notoriously well known in the art to have orthogonal downlink spreading codes for CDMA transmission, and simultaneous uplink spreading codes or successive interference cancellation, in order to distinct different users without any interference.

Therefore, it would have been obvious for one of ordinary skill in the art, at the time the invention was made, orthogonal downlink spreading codes for CDMA transmission, and simultaneous uplink spreading codes or successive interference cancellation with Widegren et al., Andersson et al, and Miya et al with Secord et al and Wickman such that different users can share the same frequency band without any interference.

With respect to claim 14, a method of operating a cellular wireless Internet access system including base and subscriber stations in a regulated frequency spectrum which allows the use of one or more channels of various channel frequency bandwidths reads on Widegren et al. See figure 1, column 2, line 39-44, column 5 and line 56-58.

The position and number of the available channels in the band is inflexible for historical allocation reason to preclude spacing, the method comprising the setting, in a particular local area, of base and user stations to operate within a single chosen useable radio frequency channel; and using TDD for both transmitting and receiving on this single radio frequency channel, reads on Miya et al. See column 2, line 1-10, column 8, and line 3-13.

With respect to claim 19, with the combination of Widegren et al., Andersson et al, and Miya et al, inherently, data rate would be determined by measurements of channel delay spread and SIR and set accordingly, using different spreading factors to establish user data rate within a fixed chip rate of DSSS transmission and associated with TDD that allow single frequency for both transmitting and receiving, in which is taught by Miya et al.

4. Claims 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Widegren et al. (US006374112B1), Andersson et al (US006400966B1) and Miya et al (US006351458B2), Secord et al (US006373831B1) and Wickman (US006047177A) above 6 as applied to claims, and further in view of Alamouti et al (US005933421A).

With respect to claim 7, combination of Widegren et al, Andersson et al, and Miya et al disclosed all of the claimed limitation, as disclose in claim 6. They didn't disclose frequency band is divided in time domain into frames and each frame has a number of time slots allocated to control, uplink, and downlink communications.

Alamouti et al discloses dividing frequency band in time domain into frames and each frame has a number of time slots allocated to control, uplink, and downlink communications, in order to reduce the interference during transmitting and receiving (see figure 1.1, 1.3, and 1.5. column 5 and lines 9-37).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, frequency band is divided in time domain into frames and each frame has a number of time slots allocated to control, uplink, and downlink communications within Widegren et al., Andersson et al, and Miya et al, Secord et al and Wickman to reduce the interference during transmitting and receiving.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Widegren et al. (US006374112B1), Andersson et al (US006400966B1), Miya et al (US006351458B2), Secord et al (US006373831B1), Wickman (US006047177A), and (US005933421A) as applied to claim 6 and 7 above, and further in view of Petch et al (US006243372B1).

Widegren et al., Andersson et al, and Miya et al do not disclose those frames are dedicated to backhaul communication between base stations that communicate freely. Petch et al disclose frames over backhaul links between base stations. See figure 2, items 18 and column 7, lines 1-10, and lines 49-60. At the time the invention was made, it would have been obviously to a person of ordinary skill in the art to have the backhaul communication between base stations. One of ordinary skill in the art would have been motivated to do this since the backhaul communication is fast and reliable for varying data rates of wireless communication system.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Widegren et al. (US006374112B1), Andersson et al (US006400966B1), Miya et al (US006351458B2), Secord et al (US006373831B1), Wickman (US006047177A), and (US005933421A) as applied to claim 6 and 7 above, and further in view of Komara (US006370384B1).

Preceding prior arts do not disclose using directional antennas for increasing of data transmission rate and improving the quality of radio channel during backhaul communication.



Komara discloses having directional antennas for backhaul communication to improve the quality of channel and high-gain during transmission. See column 6 and lines 54-64. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have directional antennas to improve the quality of channel. One of ordinary skill in the art would have been motivated to do this since directional antennas, especially narrow beam antennas, and have the advantage of minimizing interference between co-channels and adjacent channels.

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Widegren et al. (US006374112B1) in view of Andersson et al (US006400966B1) and Miya et al (US006351458B2) as applied to claim 6 above, and further in view of Secord et al (US006373831B1).

Widegren et al., Andersson et al, and Miya et al do not disclose high net data rates that have range of 1.5- 3.0 Mbps. Secord et al disclose 2 Mbps data rate that falls in the range of 1.5 - 3.0 Mbps. See column 1, and lines 23-34. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine Widegren et al., Andersson et al, and Miya et al with Secord et al. One of ordinary skill in the art would have been motivated to do this since data rates is varying with the providing frequency bandwidth. The large bandwidth has, the higher data rate gets.

8. Claim 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Widegren et al. (US006374112B1) in view of Petch et al (US006243372B1) and Komara (US006370384B1).

With respect to claim 16, Widegren et al disclose a cellular wireless Internet access system (see figure 1, items 14, 20, 24 and 30) including:

A plurality of cellular base stations for transmitting and receiving in a predetermined frequency band using CDMA; at least one of base stations have access to the Internet or Intranets (see figure 1, column 2, line 39-44, column 6, and line 1-21).

A plurality of portable subscriber terminals, each located in a small geographical area related to a specific base station, subscriber terminals transmitting data to a base station in area, which must be connected to an Internet or Internets. (See figure 1, column 2, line 35-49, column 2, and lines 27-33).

Widegren et al do not disclose subscriber terminals transmitting data to a base station in area, which is backhauled and directional radio transmission that operating in same frequency band, and associated with each base station for routing backhaul data to a base station.

Petch et al disclose backhaul data over backhaul links between base stations. See figure 2, items 18 and column 7, lines 1-10, and lines 49-60. At the time the invention was made, it would have been obviously to a person of ordinary skill in the art to combine Widegren et al with Petch et al. One of ordinary skill in the art would have been motivated to do this since the backhaul communication is fast and reliable for varying high data rates of wireless communication system.

Komara discloses having directional antennas for backhaul communication to communicate with specific subscriber terminal in a narrow beam (frequency band). See column 6 and lines 54-64. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have directional antennas to improve the quality of channel. One of ordinary skill in the art would have been motivated to do this since directional antennas,

especially narrow beam antennas, and have the advantage of minimizing interference between co-channels and adjacent channels.

With respect to claim 17, Komara further teaches a directional radio transmission including two separated base station radio transmitters and receiver units of the same type at each cell site one (see figure 1, items 12-1-1) of which communicates with said subscriber terminals (see figure 1, items 19-1) on its omni-directional antenna (see column 5, line 42) and another (see figure 1, and items 13-1-1) of which communicates with directional radio transmission to a base station (see figure 1, and items 14-1), and higher data transmission rates are permitted than between subscriber terminals and base station. See column 5, and lines 42-60. Since the communication between repeater and multi-channel host base station use backhaul communication that has very high bandwidth than between subscriber terminals and base station (repeater).

9. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over being unpatentable over Widegren et al. (US006374112B1), Petch et al (US006243372B1) and Komara (US006370384B1) as apply to claim 16 and in further view of Miya et al. (US006351458B2)

Komara further disclose directional radio transmission includes a common base station radio transmitter and receiver but with separate omni and directional antennas between antennas for communicating with subscriber terminals or exchange of backhaul traffic with other base stations and a means of increasing the transmission rates for backhaul data for such where the superior radio channel created by the use of such directional antennas permits high data transmission rates than between subscriber terminals and base station. See column 5, and lines

42-60. Since the communication between repeater and multi-channel host base station use backhaul communication that handle multi-channels and has very high bandwidth than between subscriber terminals and base station (repeater).

Petch et al further disclose the system include TDD for allocating time slots during communication between base station and subscribers or other base stations. See column 6 and line 7-14.

### ***Conclusion***

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yuwen Pan whose telephone number is 703-305-7372. The examiner can normally be reached on 8-5 M-F.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 703-308-6739. The fax phone numbers for the

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organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.

  
Yuwen Fan  
August 12, 2003

  
VIVIAN CHIN  
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8/25/03